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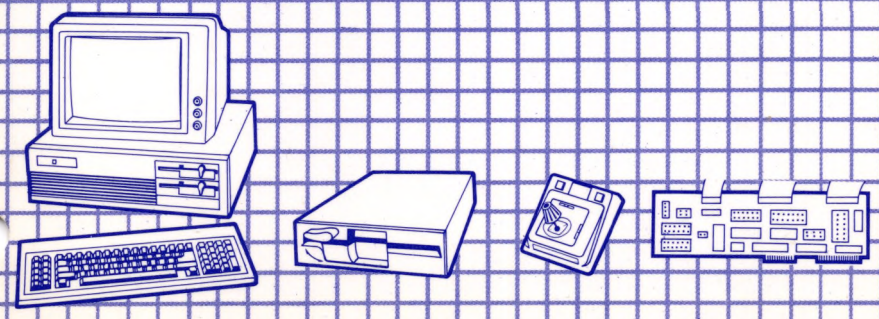
JE1080
RAM CARD
FOR THE IBM PC AND PC/XT



JE1080
RAM CARD
FOR THE IBM PC AND PC/XT

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Rev. 1B

Congratulations on your decision to purchase the new **JE1080** RAM card! The **JE1080** is based on the latest design technology and incorporates the most sought after features available on the market today. The features the **JE1080** has to offer make the **JE1080** your best choice for today's demanding computing requirements.

The **JE1080** is one of many innovative new products available for your IBM PC/XT and compatibles from **JAMECO ELECTRONICS**, pioneers in the mail-order electronics industry since 1974. Look for a growing line of high quality PC products in your latest **JAMECO ELECTRONICS** annual catalog and seasonal flyer.

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CHAPTER 1
INTRODUCTION

The JE1080 provides you with the capability of upgrading your computer memory with an additional 576K. Please keep in mind that the JE1080 can be addressed only within the first 640K. This card CANNOT be used to increase memory above 640K.

WARNING: BEWARE OF STATIC ELECTRICITY!!!

Every time your body moves, you can build up enough static electricity to damage your memory chips, the JE1080, and even your computer. The best way to ensure the highest possible protection would be to use a grounding wrist strap which is properly connected to a frame ground. This may be purchased through JAMECO ELECTRONICS (part # WS). If this is not available to you, then touch the case of the power supply occasionally to discharge any static build-up. The power supply MUST NOT BE ON but it is essential that the power supply be plugged into the wall. Only touch the case of the power supply. When you handle your JE1080 or any other card, hold it only by the edges. When handling the memory chips, try not to touch the pins.

1.1 JE1080 Card Layout

The layout for the JE1080 is illustrated in Fig. 1-1 along with a brief description of the relevant locations.

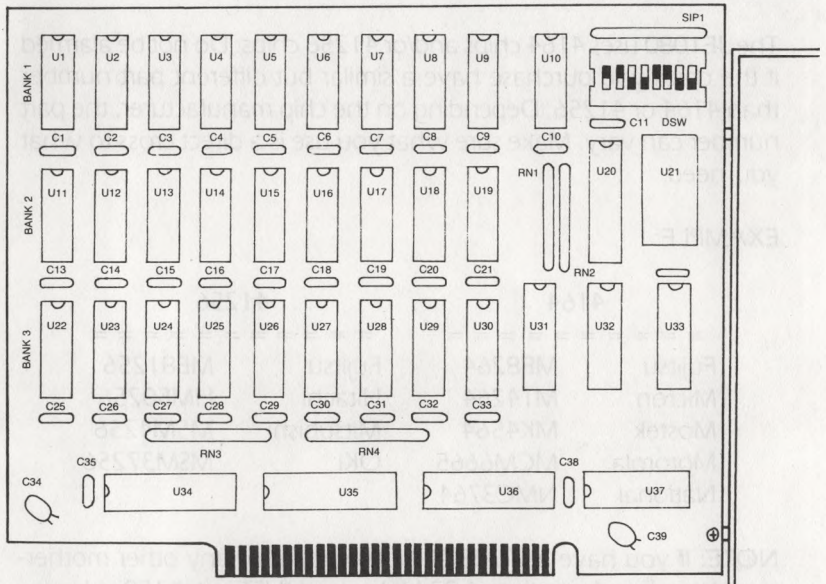

FIGURE 1. JE1080 COMPONENT LAYOUT

Fig. 1-1 **JE1080** Card Layout

CHAPTER 2
JE1080 MEMORY CONFIGURATION

2.1 What Type of Memory to Use

The **JE1080** uses 4164 chips and/or 41256 chips. Do not be alarmed if the chips you purchase have a similar but different part number than 4164 or 41256. Depending on the chip manufacturer, the part number can vary. Make sure what you use is a direct cross to what you need.

EXAMPLE:

4164		41256	
Fujitsu	MB8264	Fujitsu	MB81256
Micron	MT4264	Hitachi	HM50256
Mostek	MK4564	Mitsubishi	M5M4256
Motorola	MCM6665	OKI	MSM37256
National	NMC3764		

NOTE: If you have a 'TURBO' motherboard or any other motherboard that runs faster than 4.77 MHz, you **MUST** install 150ns (nanoseconds) or faster memory chips in **JE1080** (i.e. 100ns, 120ns and 150ns memory chips would all work).

2.2 Configuring the JE1080

First, you must determine how much memory your computer has before installing the card. The amount of memory your system currently has is considered to be the starting memory address for the **JE1080**.

Second, you must choose how much RAM you want to have. Remember that the maximum amount of memory is 640K. If you already have 640K on your computer motherboard, you cannot expand it any further using the **JE1080**.

The dipswitch (S1) controls three different functions related to memory on the **JE1080**. The three functions which must be configured are:

A. The starting address of the **JE1080**.
B. The amount of memory installed on the **JE1080**
C. Parity checking (enabled or disabled)

2.3 Set the Starting Memory Address

Your motherboard memory **MUST** match one of the starting addresses listed below. The starting memory address is the point where the computer memory ends and where the **JE1080** memory begins. S1 and S2 control the starting memory address of the **JE1080**.

STARTING ADDRESS (COMPUTER MEMORY)	S1	S2	MAXIMUM MEMORY ON JE1080	MAXIMUM MEMORY IN SYSTEM
0K (:00000)	OFF	OFF	576K	576K
64K (:10000)	ON	OFF	576K	640K
128K (:20000)	OFF	ON	512K	640K
256K (:40000)	ON	ON	348K	640K

If your computer's memory does not match one of the starting addresses shown in the previous table, then you should add or remove memory to or from your computer so it does. The **JE1080** will not function unless you have one of these memory sizes on your computer.

If you have 256K of memory on your motherboard and 256K on another memory expansion card, take the other memory expansion card out, and transfer its memory to the **JE1080** (if it uses the same type of memory). If the memory expansion card is also a multifunction card and you need the other features, find out if the memory portion of the card can be disabled by way of a switch or jumper. See the user's manual on your other cards.

2.4 Set the Amount of Memory Installed

If you look at Fig. 1-1, you will see that there are three rows of sockets with nine sockets per row. If you are holding the **JE1080** with the edge connector facing down, the banks will be numbered top to bottom BANK 1, BANK 2 and BANK 3.

Switches S3 and S4 reflect the amount of memory and type of memory to be installed on the **JE1080**.

S3	S4	BANK 1	BANK 2	BANK 3	Amount Of Memory On **JE1080**
OFF	OFF	4164	NONE	NONE	64K
OFF	OFF	4164	4164	NONE	128K
OFF	OFF	4164	4164	4164	192K
ON	OFF	41256	NONE	NONE	256K
ON	OFF	41256	4164	NONE	320K
ON	OFF	41256	4164	4164	384K
OFF	ON	41256	41256	NONE	512K
ON	ON	41256	41256	4164	576K

IMPORTANT: NEVER mix different types of memory chips in the same bank. A bank must be filled with all 41256 chips OR all 4164 chips.

2.5 Installing Memory

Pin one of each chip **MUST** face towards the top of the **JE1080** when the chip is installed. Pin one is indicated by a dot or notch at one end of the chip. Some chips have a dot on both ends. In this case, the dot which is closest to the edge signifies pin one. See Fig. 2-1. The pins are counted counter-clockwise.

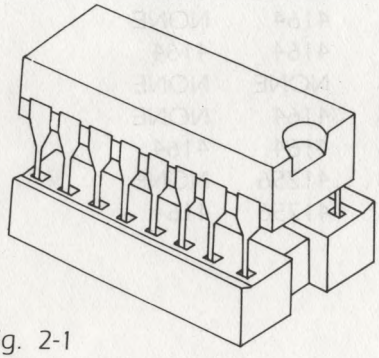

Fig. 2-1

Insert your RAM chips starting with Bank One (the top row of sockets). You might want to use an IC insertion tool (**JAMECO** part # MOS-1416). When installing chips, be very careful not to bend the pins as they are going in. Do not force a chip in. You may want to double check your installation after each bank by looking around and even under each chip. Sometimes a pin can be bent underneath the chip and still look good from a top view.

2.6 Parity Check

Switch S6 is used to enable or disable the memory parity check. When S6 is ON, the memory parity check is enabled. When S6 is OFF, the memory parity check is disabled.

Parity checking is an error checking method used by most IBM type computers. It is recommended that parity error checking be enabled in order to ensure the highest possible data integrity.

The memory in the IBM is 8 bit plus 1 parity bit. This is why there are 9 chips for each bank.

S6	PARITY
ON	ENABLED
OFF	DISABLED

2.7 Other Switches

Switches S5, S7, and S8 are not used, however S5 must be set to ON. Make sure S5 is ON. Switches S7 and S8 do not matter.

CHAPTER 3
COMPUTER MEMORY CONFIGURATION

The system board configuration process varies, depending on whether you have a PC-1, PC-2, PC-XT, or compatible.

3.1 Removing the PC System Unit Cover

If you have an IBM, instructions for removing the cover and setting the switches on your system board are contained in your 'Guide to Operations' manual. If you have a different type of computer, these same items will be covered in its manual. If you have a flip-top case, you can simply lift it open, otherwise refer to your computer's manual.

CAUTION: Be sure that the power switch is OFF. There is no need to remove the AC cord, it should be left plugged in so that you can discharge static properly from your body by touching the power supply case. Also, turn off any other equipment connected to the computer. Installing any component while the power is on can permanently damage your computer and its components.

3.2 PC System Board Switch Configuration

The IBM PC (PC-1 and PC-2) must be set for the exact amount of total memory installed in the system. This means setting the switches on the motherboard for:

1) the total memory on the motherboard, PLUS
2) the total memory that is on the JE1080 which equals total system memory.

The PC models are described in sections 3.3 and 3.4.

The XT is slightly different and does not need any switches to be changed as long as you do not change the amount of memory on the motherboard itself. The XT will automatically recognize any memory that has been installed, up to 640K.

3.3 Total Memory Installed in the PC-1

On the PC-1, there are two 8-pole dipswitches. IBM refers to them as switch blocks. You must set four of the switches on switch block 2 (SW2).

TOTAL MEMORY	PC-1 DIPSWITCHES (SW2) S1	S2	S3	S4
64K	ON	ON	ON	ON
128K	ON	OFF	ON	ON
192K	ON	ON	OFF	ON
256K	ON	OFF	OFF	ON
320K	ON	ON	ON	OFF
384K	ON	OFF	ON	OFF
448K	ON	ON	OFF	OFF
512K	ON	OFF	OFF	OFF
544K	OFF	OFF	OFF	OFF

NOTE: *The PC-1 has a maximum RAM setting of 544K. If your PC-1 is equipped with the IBM expansion unit and has the new ROM BIOS installed, then you can address a full 640K, and you should use the switch settings for the PC-2.*

3.4 Total Memory Installed in the PC-2

To determine the correct system board switch setting, add together the amount of memory on the motherboard and the amount of memory on the **JE1080**. As with the PC-1, the PC-2 also has two 8-pole dipswitches which IBM terms as switch blocks. You must set five of the switches on switch block 2 (SW2).

	PC-2 DIPSWITCHES (SW2)				
TOTAL MEMORY	S1	S2	S3	S4	S5
64K	ON	ON	ON	ON	ON
128K	ON	OFF	ON	ON	ON
192K	ON	ON	OFF	ON	ON
256K	ON	OFF	OFF	ON	ON
320K	ON	ON	ON	OFF	ON
384K	ON	OFF	ON	OFF	ON
448K	ON	ON	OFF	OFF	ON
512K	ON	OFF	OFF	OFF	ON
576K	ON	ON	ON	ON	OFF
640K	ON	OFF	ON	ON	OFF

CHAPTER 4
INSTALLATION PROCEDURES

4.1 Installing the JE1080

Follow each procedure carefully. In order to install the **JE1080**, your system must be an IBM PC, PC/XT or a true hardware compatible to one of these computers. Systems such as the TANDY 1000 series of computers are NOT compatible with the **JE1080** since they are not truly hardware compatible with the IBM PC series of computers.

1. Turn OFF your computer and any other peripheral that may be attached.

2. The cover should have been removed previously in section 3.1.

3. Select an unused slot. Remove the bracket cover to the corresponding slot. Save the screw, you will use it later.

4. At this point you should have already set all the switches and jumpers to their correct positions according to the previous chapters. If you have not done so already, go through these chapters and set the jumpers and switches accordingly. If there are any modifications that need to be done to any other card in your system due to the installation of the **JE1080**, please do so now.

5. Install the **JE1080** into the chosen slot. Slide the **JE1080** down carefully and press it into the slot. Make sure that it firmly seats into the slot. Secure the **JE1080** in place with the same screw used to remove the cover for these slots.

6. Replace the computer cover.

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